

## **REMARKS**

Claims 1, 2, 5, 6, 9-13 are pending in the application.

### **Claim Objection**

Claim 1 is objected to because of a typographical error (extraneous inclusion of "tickets"); this error has been corrected.

### **Claim Rejections - 35 U.S.C. 112**

Claims 1, 2, 5, 6, 9-13 stand rejected under 35 U.S.C. 112, 1st paragraph, as failing to comply with the written description requirement.

Examiner points out that the claim language implies that only one document is maintained in the storage until the amount or value of said document meets or exceeds the amount of the ticket while it is apparent from the disclosure that the sum of several documents is meant in this context (para 0003 of specification). The claim language of claim 1 has been corrected accordingly to set forth that the amount of the documents maintained in the storage exceeds or meets the ticket amount.

Examiner also points out that the language of claim 1 and claim 10 in regard to the verification methods is problematic; examiner has suggested that the step of comparing be supplemented by "the results" of the verification methods. This has been done in both claims.

Claims 1, 2, 5, 6, 9-13 stand rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite.

The examiner has pointed out that the "visual examination of visual verification" language is confusing and has suggested that instead simply wording in regard to the document being accepted when it passes "an operator's visual verification" be used. The claims 1 and 10 have been revised accordingly.

Examiner has further pointed out that the claim language in regard to the document being fed to a separate storage or ejected is unclear and requested further clarification. Claims 1 and 10 have been amended to now set forth that the "refused document is either fed to a separate storage device for invalid documents or the refused document is ejected". It is believed that this language has eliminated the indefiniteness of the claims, respectively.

Reconsideration and withdrawal of the rejection under 35 USC 112 are respectfully requested.

**Rejection under 35 U.S.C. 103**

Claims 1, 2, 5, 6, 9-13 stand rejected under 35 U.S.C. 103(a) as unpatentable in view of APA, US 2001/006556 (*Graves*), and US 5,537,486 (*Stratigos*).

Claim 1 and claim 10 are based on the following steps:

- authenticating the document by performing a combination of at least two different verification methods;
- comparing results of the at least two verification methods with verification specifications;
- determining a probability of authenticity of the document based on predetermined criteria;
- releasing the document for further processing comprising:

when the probability meets the predetermined criteria, the document is positively authenticated and

(claim 1) the document is maintained in the intermediate storage until the amount of the documents in the intermediate storage corresponds to or exceeds the amount of the ticket

(claim 10) the document is transported in the storage for positively authenticated documents; or

when the probability does not meet the predetermined criteria and the document is negatively authenticated, the document is recorded as an image and the image is presented to an operator for visual verification by the operator, wherein

the document is accepted when the document has passed operator's visual verification and the document is maintained in the intermediate storage,

or

the document is refused when the document does not pass operator's visual verification, wherein the refused document is fed to a separate storage device for invalid documents or the refused document is ejected.

The object of the present invention is to provide a method for accepting and authenticating documents (especially banknotes). The invention is particularly directed to sales machines for public transportation tickets. The ticket prices nowadays make payment by means of coins essentially impractical and therefore banknotes are used primarily for payment. The problem is that banknotes must be recognized as such and authenticated as valid payment. It happens frequently that a valid banknote is not accepted because it has flaws (torn paper, creases, folds) so that verification by a sales machine causes the banknote to be rejected even though it is valid. The result is that a customer who wants to purchase a ticket at such a machine is prevented from purchasing the ticket because of improper authentication; either purchase is delayed until the customer is able to present another banknote or the purchase is entirely impossible because the customer currently does not have a banknote at his disposal that is accepted by the machine. In any case, quickly and easily purchasing a ticket is made difficult; lines may form because of the delay and departure on a scheduled train or bus may be prevented. It is especially problematic that such ticketing machines are also installed on board so that a customer who has already boarded and wants to purchase a ticket while already traveling is prevented from purchasing the ticket he needs. When public transportation personnel (fare inspectors) then check on possession of a valid ticket on board the train or bus, the customer may be faced with a penalty for not having a valid ticket.

The present invention is directed to authentication based on at least two

verification methods. Based on the outcome of the at least two verification methods, the document is accepted when probability criteria are met or further checked when the probability criteria are not met and when there is doubt in regard to authenticity. Further checking is done by recording an image of the document and the image is presented to an operator for visual verification. The operator then accepts or rejects the document based on the image. The method provides for individual documents being examined further by visual inspection – thus, only documents that are questionable out of several sequentially submitted documents are further examined visually as the need arises.

In order to take into account the special situation in public transportation, the present invention proposes that in case of negative verification of banknotes by means of two different verification methods the banknote is recorded (scanned), i.e., an image is produced and an operator will check the image visually. Thus, only those banknotes are scanned that have not passed authentication by prior verification methods of the ticketing machine and that are rejected. Therefore, the method according to the present invention avoids generating unnecessary quantities of data and reduces apparatus expenditure, in particular with respect to storage of scanned images of banknotes.

For example, in the context of the present invention, it is provided that in case of negative verification by the ticketing machine of the public transportation system the banknote is scanned and is presented to the driver of the public transportation vehicle on a screen. The driver can then immediately decide whether the banknote is acceptable or not. By entering a corresponding command ("accept" or "refuse"), the ticketing machine receives authorization to accept the banknote or reject it so that the ticketing process can be continued in a timely fashion.

The present invention therefore enables in a simple way an immediate and fast reaction with regard to checking and verifying banknotes that have been previously rejected by the automated verification methods of the ticketing machine by adding a visual examination feature; it is thus possible to provide instantly a decision on validity of banknotes. Therefore, the ticketing system as a whole becomes more user-friendly because the number of rejects of valid banknotes is significantly reduced by human intervention of the operator. At the same time, an extremely fast reaction and decision-making process of the ticketing machine with regard to sales of the tickets is

enabled and a quick completion of transactions at the sales machine is possible because scanning is carried out only when a negative authentication of the automatic verification processes of the ticketing machine has occurred.

Examiner states that the subject matter of the present invention as claimed is unpatentable in view of the combination of APA, U.S. 2001/0006556 and U.S. 5,537,486 because APA shows the general concept of the method of sales machines with single verification, while U.S. 2001/0006556 shows dual verification and U.S. 5,537,486 shows manual verification.

With respect to U.S. 2001/0006556, applicant submits that the present invention is directed to a method employed in a ticketing machine for selling public transportation tickets. Thus, verification PRIOR to acceptance of a banknote for payment purposes is desired. In contrast, the cited reference U.S. 2001/0006556 relates to a method in the banking environment where a stack of banknotes (already accepted in the daily operative business of a bank) is to be checked with regard to invalid banknotes (page 1, para 0004 and 0009), i.e., the banknotes have already been accepted by the bank and are now, after the fact, checked for counterfeit notes. The goal of the method of U.S. 2001/006556 is to obtain a record of how many suspect notes are received each day and where they originate from (para 0009). As set forth in para 0010 (Summary of the Invention), a currency discriminator is provided for evaluating currency bills and recording information associated with the bills. The cited reference does not provide for visual examination by an operator because an operator can no longer make a decision in regard to accepting or rejecting the banknotes – the operator is only advised of the fact that a stack of banknotes contains suspect or invalid banknotes (paragraphs 42 and 82 of the cited reference). Since the banknotes of the stack have already been accepted and scanned, the operator receives only a printout or data set as a record of the bills in the stack; the operator has no influence on the acceptance of the banknotes. The purpose of the proposed method according to U.S. 2001/006556 is record keeping of accepted banknotes and not further verification and authentication of banknotes in order to allow a purchase or refuse a purchasing transaction.

Therefore, the cited reference belongs to another technical field than the present invention, i.e., scanning stacks of banknotes in the context of banking operations. This is entirely different with regard to quality and type of processing in comparison to the present invention because the present invention is directed to enabling a decision with regard to accepting a banknote as quickly as possible so that purchase transactions at the ticketing machine are enabled. According to the present invention, there is no stack of banknotes to be checked but only an individual banknote is to be checked for its validity as a basis for accepting or rejecting it as a means of payment. This is in contrast to the cited reference where large volumes of banknotes are checked at a facility in regard to type of currency, denominations etc. In the method of the cited reference the time factor with regard to making a decision whether a banknote is valid or not plays no role; the banknotes have already been accepted – no purchase transaction is pending. In the cited reference the primary focus is on safe and correct recognition of banknotes as a valid one or an invalid one and keeping records.

The cited reference provides no motivation to provide a further visual testing or checking of a banknote that has been identified as suspect in order to allow or deny a purchase. Since the method of the cited reference is directed to processing already accepted stacks of banknotes (large volume) and record keeping, the visual examination of individual banknotes is not provided for.

The examiner has cited U.S. 5,537,486 as showing manual confirmation and visual checking of a graphics image file of documents before the document is honored.

Applicant respectfully submits that this reference discloses a high-speed document verification system. The system is based on each and every document being scanned ( col. 1, lines 46- 50). In order for the method of U.S. 5,537,486 to work, the documents must have a printed pattern to be recognized by means of a differentiation scanner (see col. 1, lines 54ff; the graphic image is a safety feature printed with special ink onto the documents and recognized by the high-speed scanner but not by the human eye). The scanned image is then transmitted to a comparator (col. 1, line 63) that compares the image with images of known valid documents. The scanned documents may be checked by an operator manually with regard to validity, for example, when automated examination leads to a negative result (col. 2, lines 1-5).

This reference provides no motivation to a person of skill in the art that would lead to the present invention since a single automatic checking action is taught and is performed on ALL documents by scanning each and every document that is submitted. If a suspect document is found among ALL previously scanned documents, then a manual investigation may be done. This is contrary to the present invention where scanning is performed only at the time a suspect document has been identified.

Moreover, in this reference a special form of scanning is required that makes it possible according to a differentiation method to emphasize different areas of a check, bond etc. The document must be printed with special ink and scanned in a special way that is responsive to the special ink.

The present invention differs in that first the banknote is scanned only when prior automatic verification methods have led to a negative authentication. Prior to this decision of negative authentication (meaning document does not meet the predetermined criteria), there is no scanned image of the banknote. It should be noted that the procedure as set out in the method according to the invention (i.e., scanning only upon negative authentication based on prior verification methods) is particularly expedient when, for example, mechanical paper-based features are to be detected in the purchasing process, for example, the dimensions of the banknote, damaged paper, creases etc.; in such a case, scanning is not required.

Moreover, a person of skill in the art can neither derive from U.S. 2001/006556 to perform a visual examination at all nor is there any motivation to be derived from U.S. 5,537,486 to provide a second automatic verification since the process is based on a printed-on safety feature to be detected by differentiation scanning.

However, it is precisely the proposed combination of at least two verification methods and scanning for visual examination by an operator only in case of negative authentication that enables a high reliability in regard to accepting valid payment means for automated purchasing transactions. At the same time, the need for visual examination is significantly reduced due to prior verification and probability check. This not only provides for reduced costs but also, as a whole, a high processing speed even when individual banknotes may still be recognized as invalid by the sales machine.

For this advantageous effect of the present invention, there is no motivation or

suggestion to be found in U.S. 2001/006556 or in U.S. 5,537,486 or in the combination of both. Moreover, it is questionable whether a person of skill in the art will look at these two references that, in applicant's opinion, are belonging to different technical fields.

Even when a person of skill in the art will combine the teachings of these two references, there is no motivation to perform scanning exclusively at the time when the prior automatic verification system has resulted in negative identification. Already this fact in and of itself is sufficient to show that the invention as claimed is not obvious in view of the cited references.

It is therefore respectfully submitted that claims 1 and 10 with their respective dependent claims are not obvious in view of the cited references.

Reconsideration and withdrawal of the rejection of the claims under 35 USC 103 are therefore respectfully requested.

#### CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or **e-mail** from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on Mai 22, 2011,

/Gudrun E. Huckett/

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Ms. Gudrun E. Huckett, Ph.D.  
Patent Agent, Registration No. 35,747  
Schubertstr. 15a  
42289 Wuppertal  
GERMANY  
Telephone: +49-202-257-0371  
US-Fax: (877) 470-9712  
gudrun.draudt@t-online.de

GEH